PROJECT FACT SHEET

CONTRACT TITLE: Reservoir Characterization of Upper Devonian Gordon Sandstone Jacksonburg-Stringtown Oilfield Northwest West Virginia/Fundamental Geoscience Award

ID NUMBER: DE-AC26-98BC15104 **B&R CODE**: AC1005000	**CONTRACTOR**: West Virginia University **ADDR**: P.O. Box 6845 Morgantown, WV 26506
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PROJECT SITE **CITY**: Morgantown **STATE**: WV **CITY**: **STATE**: **CITY**: **STATE**:	**CONTRACT PERFORMANCE PERIOD:** 9/29/1998 to 9/28/2001 **PROGRAM**: Supporting Research **RESEARCH AREA**: Supporting Research **PRODUCT LINE**: ADIS

FUNDING (1000'S)	DOE	CONTRACTOR	TOTAL
PRIOR FISCAL YRS	380	66	446
FISCAL YR 1999	300	66	366
FUTURE FUNDS	34	66	100
TOTAL EST'D FUNDS	714	198	912

OBJECTIVE: A three-dimensional model of permeability for the Upper Devonian Gordon sandstone oil reservoir in Jacksonburg-Stringtown field will be developed.

PROJECT DESCRIPTION:

Background:

Work to be Performed: The West Virginia University Research Corporation (WVURC) will develop a three-dimensional model of permeability for the Upper Devonian Gordon sandstone oil reservoir in Jacksonburg-Stringtown field, northwestern West Virginia using two distinctly different approaches: one will rely on geostatistical analysis of geophysical and core data, and the second will be based on direct measurement of permeability in core and outcrop. The WVURC will establish relationships among permeability, geophysical data and other data by integrating geologic, geophysical and engineering data into an interdisciplinary quantification of reservoir heterogeneity as it relates to production of associated fluids and gasses. This ultimate goal of the research will be achieved by conducting six integrated tasks and their component subtasks. Three of these tasks will be designed to acquire the necessary data required by the fourth task, which will be to characterize the reservoir. Technology transfer will be conducted under a separate task, and project management will be the focus of the final task. Technology transfer will center on the use of the facilities and organization of the Appalachian Region Petroleum Technology Transfer Council (PTTC) at West Virginia University.

PROJECT STATUS:

Current Work: Research during the April 1, 1999 to September 30, 1999 period was focused on completion of Task 1, Database Development, as well as on Task 2, Reservoir Description, and Task 3, Outcrop Permeability. Twenty two milestones originally were scheduled to be delivered during the reporting period, 10 in Task 1, 10 in Task 2 and two in Task 3. However, due to the later than anticipated original start date of the contract, we realized at the outset that Task 3, the outcrop permeability study, would be delayed by at least six months before we could begin to collect permeability data. This affected not only four milestones in Task 3 for the first year of the contract, but also four milestones in Task 2 that are directly related to permeability data.

Scheduled Milestones:

Digital data sets	09/99
Preliminary stratigraphic cross sections	06/99
Regional study	09/99
Digitizing all available logs	05/99
Autocorrelation of all logs	09/99
Correlation procedures and statistical relationships	09/99
Results and procedures summarized and reported	09/99

Accomplishments: Fourteen of the 22 milestones (MS 1, 4, 5, 9-12, 14-16, 19, 20, 22, 32) were completed on schedule. However, progress on the remaining eight milestones originally scheduled in our proposal to be completed (MS 13, 17, 23, 24, 33, 34, 43, 44) has been delayed due to the later than anticipated start of the contract that eliminated our first fall field season, problems with the vendor who supplied the minipermeameter and pressurized gas tank that nearly eliminated our summer field season, and delays in obtaining fluid and gas production data from our company partner. The net result was that we could not begin our field permeameter study until near the end of the summer 1999, whereas in our original proposal we had anticipated a fall 1998 start and a summer 1999 completion. Thus, we lost essentially a full year on the field portion of this research study through problems beyond our control. Our new milestone targets are:

MS	Original date	Revised date
13	September 99	March 2000
17	September 99	December 99
23	September 99	December 99
24	September 99	December 99
33	September 99	December 99
34	September 99	December 99
43	September 99	September 2000
44	September 99	September 2000

The field scale study has been completed and several observations have been made. The Gordon sandstone is uniform in thickness across the field and can be subdivided into three consistent units. However, the position of the pay intervals within these units varies across the field. Because of the heterogeneous nature of the Gordon across the field, more detailed information on the character of the reservoir, such as grain size, lithology and depositional environment, will need to be incorporated into the relationship between permeability and well log data.